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Preservation of the Contagious Bovine Pleuro-Pneumonia Organism

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One of the difficulties of immunisation against contagious bovine pleuro-pneumonia, at least in the Sudan, is the maintenance of cultures at a desired level of virulence. If cultures are too old, *i.e.*, if too many subcultures have been carried out, immunising power is lost; if cultures are too fresh virulence is too marked for safety.

The present method of immunisation used here, devised by Bennett (1932), involves the utilisation of strains of the pleuro-pneumonia organism isolated from artificially infected cattle and subcultured weekly through serum broth about 40 times. After such a procedure the strain is relatively non-virulent and can be used for the preparation of vaccine for perhaps a further 20 subcultures; it is then discarded and a fresh strain used. Thus it is continually necessary to inoculate cattle with virulent organisms and to subculture the subsequently isolated organism. Even though safety tests are carried out on small batches of animals it is clear that the procedure can never be uniform.

One of us, having had experience of maintaining cultures of bacteria dried over P_2O_5, considered that if the pleuro-pneumonia organism could similarly be dried many of the existing difficulties would be overcome. Organisms of any desired degree of virulence could then be maintained indefinitely and much labour saved. The advantages of having a culture of uniform virulence for vaccine production need no emphasis.

Before survival tests on dried cultures were carried out it was necessary to know approximately how long ordinary serum broth cultures would survive. It was found that from cultures stored in the ice-chest subculturing was usually successful after 60 but not after 90 days; on one occasion only a successful subculture was made after storage for 94 days. At 37° C. the organism appears to survive for about the same time, *i.e.*, about two months; actual counts—by a dilution method in which the highest dilution to show growth is determined—have shown that the organisms tend to reach a maximum quickly, to remain steady for at least six more days, and thereafter to decline slowly.

The initial experiments on drying revealed that it was essential to use young cultures and to incorporate serum, and that it was advisable to use liquid rather than solid cultures—since it is difficult to remove the organisms from solid medium. The technique finally adopted was to mix equal volumes of a 48-hour serum broth culture and sterile horse serum and to dry approximately 0·1 c.c. of the mixture in small tubes contained in larger tubes holding a liberal allowance of P_2O_5. So-called "tumour lymph" can be dried untreated since the organisms are here already suspended in a serum-like fluid. Evacuation prior to sealing was carried out by means of a hand-operated Gerrick pump, there being no Hyvac pump readily available.

Having adopted this technique the following tests were carried out:—

(*a*) "Lymph" from an artificially infected bull was collected and dried; 24 hours later the tube was opened, the dried lymph resuspended in 2·0 c.c. serum broth and inoculated intramuscularly into another bull, which died 26 days later showing a typical swelling at the site of inoculation.

(*b*) Dried "lymph" from an artificially infected bull was tested for growth by subculture to serum broth after storage in the ice-chest for 49, 78, 91 and 114 days. In all cases growth was obtained.

(*c*) Tubes of a dried 10th generation culture (*i.e.*, a strain subcultured ten times) stored in the ice-chest were tested for survival after 7, 28, 112 and 117 days. The tube tested after 112 days was contaminated with cocci; all others gave growth of the pleuro-pneumonia organism.

(*d*) Tubes of a dried 54th generation culture (non-virulent) were tested for growth after one and 154 days storage in the ice-chest. Both gave growth.

(*e*) The culture from the "lymph" dried for 91 days, referred to in (*b*) above, was subcultured to 25 c.c. serum broth which was incubated for three days and then stored in the ice-chest for a further 14 days. A bull was then inoculated intramuscularly with 20 c.c.; it developed a swelling in about three weeks and died 33 days after inoculation. This observation, although not conclusive, indicated that the dried "lymph" had retained its virulence.

It is thus evident that the pleuro-pneumonia organism can be successfully dried. It has been noted, however, that the time of the appearance of growth on subculture following drying is directly related to the period of storage; thus, after storage for one day a subculture shows growth in three days, after storage for seven days in four days, after storage for 28 days in five days and after storage for over 100 days in nine or ten days. The implication is that the organisms are dying off. This we believe to be due to the imperfect evacuation employed by us and we suggest that if a Hyvac pump is used this organism will survive dried as successfully as do bacteria.

Summary

The causal organism of contagious bovine pleuro-pneumonia has been successfully dried over P_2O_5 and maintained for a period of 154 days, which is, at the very least, 60 days more than it will survive in culture.

Acknowledgment.—We wish to record our thanks to Mr. J. T. R. Evans for his encouragement and suggestions during the course of this work.

REFERENCE

BENNETT, S. C. J. (1932.) *J. comp. Path.*, **45**, 257.

Encephalitis in the Fox and in the Dog*

By

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In order fully to understand the occurrence of fox encephalitis in the dog, may I first describe it as it occurs in its natural host, the fox. With this background a better knowledge of the various ramifications of the disease may be had. Encephalitis is not a new disease. It has occurred enzootically for at least 25 years on fur farms of the Fromm organisation and taken a toll of over 8,000 foxes. It has been identified by laboratory studies for a period of ten years. Its spread in breeding pens is slow, with only occasional losses—the aggregate amounting to not more than 5 per cent. during an entire year.

Fox encephalitis is widely distributed among foxes in captivity and persists as an enzootic disease over long periods on the larger fox ranches.[1] It is caused by a virus which is easily filtrable through ordinary bacteria-proof filters. The disease may be identified by the occurrence of specific intranuclear inclusions. Although in the past this disease has been confused with canine distemper it is a distinct entity. The virus of fox encephalitis differs markedly in its characteristics from the virus of Carré.

Clinically fox encephalitis is a disease of the central nervous system, as the most usual symptoms are referable to irritation or damage in the brain and spinal cord. Pathologically the disease

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is a generalised virus infection and involves particularly the endothelial cells of the smaller blood vessels. The injury to the vascular system results in haemorrhage and cellular degeneration. As the central nervous system is functionally most susceptible to this type of damage, the symptoms observed are of central nervous origin.

Epizootic Occurrence

Under certain conditions a more rapid spread of the disease is observed with small outbreaks in epizootic form. Such a spread is apt to occur after such procedures as re-mating foxes in the fall. Occasionally a well denned epizootic spread of this disease is observed in early summer soon after the fox pups emerge from the kennels. Epizootics of this disease are prone to occur when foxes are congregated and allowed to mingle in large fur runs or ranges. In such circumstances the disease may occur in explosive form, sometimes involving as many as 40 per cent. of the animals present. It may make its appearance within six days after entrance of foxes into a common enclosure and the height of the epizootic may be reached within 21 days, with almost complete subsidence within four weeks after entrance.

Transmission

The disease is transmitted by direct contact with upper respiratory secretions carrying the virus. Identification of the virus in nasal washings of both sick and contact animals has been accomplished experimentally. The occurrence of virus in the nasal secretion has been shown to be due to direct involvement of the nasal epithelium.

Morbidity and Mortality

In some outbreaks of fox encephalitis morbidity and mortality are almost identical, with practically all foxes that show symptoms succumbing to the infection. In other outbreaks the morbidity may be as high as 25 per cent. with a mortality of only 2 per cent. This difference in degree of morbidity and mortality is due to the occurrence of distinct types of the virus as well as to changes in the virulence of the same virus type. The mortality from fox encephalitis will therefore vary from as low as 2 per cent. up to 40 per cent. of the animals exposed.

Course of the Disease

Experimentally it has been shown that fox encephalitis runs an extremely rapid course so far as recognisable symptoms are concerned. The incubation period varies from two to six days, depending upon the type and virulence of the virus. The onset is abrupt with the sudden development of symptoms referable to damage in the brain and spinal cord. The duration of symptoms is short, varying from one hour to three days, the usual duration being less than 24 hours.

In this disease death occurs in highly susceptible animals at the onset, upon the general invasion of the virus. In resistant animals, which recover from the infection, the virus appears to persist for several weeks with symptoms occurring only during the early period of general invasion.

Symptoms

The abrupt appearance of the initial symptoms is characteristic of this disease. A violent convulsion is the most common initial symptom. This is usually followed by a lethargic state in which the animal walks around though it appears to be asleep. It may then become conscious and develop a state of hyperexcitability, which terminates in another convulsion which is in turn followed by the lethargic state. Foxes can be killed by the slamming of doors or the making of any excessive noise. Careful observation often shows that a general weakness is the first symptom, although the wild nature of a fox usually prevents the discernment of this symptom. Occasionally there are varied symptoms such as muscular twitching and definite hallucinations. Sudden death is the usual outcome; however, death often supervenes only after a prolonged terminal coma.

Physical Findings

Careful observation in experimental animals shows that the development of major symptoms is usually preceded by a definite rhinitis for 24 hours, during which clear liquid drips from the nose. Occasionally a purulent discharge develops. The eyes are generally clear with little suggestion of any discharge. Sometimes the eyes are involved with an interstitial keratitis and sometimes a nystagmus is present. Haemorrhage into the anterior chamber of the eye is not uncommon. Stools are usually soft with much mucus present. The faeces may be bloodstreaked from haemorrhage into the lumen of the bowel, or may consist of blood only. Fox encephalitis is such an acute disease that there is usually no loss of weight and animals die in full flesh.

Necropsy Findings

The animal is in good flesh. The essential gross character of fox encephalitis is haemorrhage, as the disease is primarily an involvement of the blood vessels. Haemorrhages usually occur in the heart and may be subendocardial. Gross haemorrhages also involve the adrenals, pancreas, thymus, submaxillary glands and lungs. Tissues in which gross haemorrhages are of greatest importance are those of the central nervous system. Here the gross haemorrhages are exaggerations of microscopic haemorrhages which occur throughout the brain and spinal cord. The outstanding lesion is haemorrhage of the diaphragm.

Microscopic Pathology

Microscopic examination shows haemorrhage of varying degree in many organs but most constantly in the central nervous system. Intranuclear inclusions are found in smears made from the hypocampus of the brain or from a small piece of the dura mater. Not infrequently the intranuclear inclusions are found in the hepatic cells of the liver and in the medullary cells of the adrenal. Fox encephalitis may be distinguished from the central nervous system type of canine distemper by the presence of these specific inclusions.

Immunity

Foxes that recover from encephalitis are permanently immune. Natural immunity appears to be the most important factor in the mortality of this disease. Highly susceptible foxes die at the onset of the generalised infection; animals with a sufficient degree of natural immunity show some symptoms at the onset but recover. Many animals are apparently so resistant that no invasion of the virus can be discerned. As the course of the disease is so abrupt, it does not seem that acquired immunity plays any role, in the susceptible animal, in recovery from this infection. If the natural resistance is low, the animal dies promptly upon invasion of the virus. With some degree of resistance, the animal does not die, and later an acquired immunity eventually eliminates the virus. The acquired immunity has been shown to be due to the development of antibodies in the blood.

Antiserum

A rather efficient serum for passive immunity to fox encephalitis can be obtained by the hyperimmunisation of foxes that have recovered from it. Weekly injections of brain, liver or spleen virus continued over a period of six months are necessary to produce a satisfactory antiserum.

Vaccination

Attempts to develop an efficient vaccine made from killed virus have given unsatisfactory results. Here, as with many other viruses, it appears that high concentrations of killed virus must be used, concentrations greater than are found in the tissues of infected animals.

Serum-Virus Vaccination

Extensive attempts to develop a serum-virus combination for vaccinating against fox encephalitis have shown this procedure to be highly dangerous because of the development of delayed infections. After injection of serum-virus mixtures a fox is protected against immediate invasion of the virus and appears well for about four weeks. At about that time many animals so injected die from an acute attack of the disease. Development of acquired immunity to this disease is so slow that by the time the serum effect has worn off, many animals are still highly susceptible and persistence of the virus causes delayed infections. Although experimentally animals can be immunised by the use of serum-virus mixtures and subsequent injections of serum at two-week intervals, the procedure has proved somewhat dangerous and unwieldy, and after six months, 8 per cent. of the treated animals are still highly susceptible.

Control of Fox Encephalitis

From rather extensive experimental tests with fox hyperimmune serum, it appears that acute epizootics of encephalitis can be controlled by passive immunity under conditions permitting successive injections of antiserum. With more extensive recognition of this disease it should be possible to have available commercial serums for the control of acute outbreaks. Successful vaccination against fox encephalitis is still a complex problem requiring further investigation of the immunological aspect of the disease.

In discussing distemper and distemper-like diseases,[2] I prefer to use the term "distemper complex." There is a great tendency to diagnose distemper in any dog which shows a purulent discharge from the eyes and nose and at the same time, is running a temperature. From our experimental work at Fromm Laboratories, it is becoming more and more evident that symptoms, such as a

purulent discharge from the eyes and nose, can be brought about by any increase in temperature. Apparently, this temperature, which must be elevated for some time, starts the dog's mucous membranes immediately flowing and this flow of mucus sustains bacterial growth, resulting in a purulent mass. This condition, clinically indistinguishable from virus distemper, misled Ferry many years ago. Slingman described it more recently, Frohring did much research on it and innumerable practitioners have observed it.

I have seen this particular picture in a variety of diseases—among them being more common types of pneumonia, streptococcus infections, malnutrition, paratyphoid and fox encephalitis in dogs. Obviously, a good clinician develops a clinical sense and can, in many cases, make a fairly accurate diagnosis among these various diseases. However, I am equally certain that these diseases are diagnosed in many cases as simply "canine distemper."

The Disease in Dogs

Dr. Robert G. Green first described fox encephalitis some 15 years ago, when a violent outbreak occurred among foxes. At the beginning of his studies, he believed it to be fox distemper; and it was not until a considerable amount of work had been done on it that it became apparent that it was a virus disease distinctly different from the distemper virus, *i.e.*, Carré's distemper virus.

The distemper virus attacks only the epithelial cells or cells of epithelial origin. Also, the distemper virus produces cytoplasmic inclusion bodies in the cells. The fox encephalitis virus, on the other hand, invades only endothelial cells and forms intranuclear inclusion bodies. Fox encephalitis is not a true encephalitis because it does no direct damage to the nerve tissue. The damage is done to the blood vessels in the brain, which results in cerebral haemorrhages. These haemorrhages injure the nerve tissue and the symptoms of encephalitis are a consequence.

Another difference between this virus and the distemper virus is shown in the reaction of ferrets. These animals are immune to the fox encephalitis virus, but highly susceptible to the virus of Carré.

Still another striking difference appears in animal inoculation. When fox encephalitis virus is injected into the anterior chamber of the eye of either fox or dog, it starts growing immediately in the endothelium lining the inside surface of the cornea, causing the cornea to cloud. This is an extremely delicate test for the detection of this virus. When canine distemper virus is injected into the anterior chamber of the eye, there is no change in the cornea and the eye remains clear.

When this virus is experimentally injected into dogs, these dogs promptly develop a fever varying from 103° to 106° F. and this temperature is maintained for from five to ten days. Again, a purulent discharge appears in the eyes and nose; the dog is definitely sick; his coat becomes rough. About 75 per cent. of affected animals recover promptly. The other 20 to 25 per cent. succumb to the infection. The terminal stage of the disease varies greatly in dogs. About one-half of the 20 to 25 per cent. of fatal cases show neurological symptoms; only an intensification of the clinical picture just described. They are usually dead within seven to ten days from the time of injection. The remaining one-half of this 20 or 25 per cent. manifest various types of nervous symptoms, varying from a simple blinking of the eyes to violent convulsions. Generally, these neurological symptoms persist for a long time if the dog does not die; however, not enough of these cases occur to change the 20 to 25 per cent. mortality. Several of our experimental dogs have developed the classical chorea-type symtom of jerking a front or hind leg. Others develop paralysis of the hind legs.

One of the striking differences between this disease and distemper is that a proportion of the infected dogs remain on feed to within 24 to 48 hours of death. In my experience this is rarely seen in canine distemper. The progress of encephalitis is far more rapid than that of distemper. We consider the normal course of distemper in a dog to be three or four weeks. Dogs infected with the fox encephalitis virus are usually dead within two weeks or have recovered completely by the end of the third week.

Another interesting point of differentiation between the fox encephalitis virus and the distemper virus, lies in the antigenic characteristics shown in the production of immune serum. Dogs immunised against fox encephalitis produce an extremely high titre against this virus. The virus if left in contact with the hyperimmune serum *in vitro*, will be neutralised rapidly. On the other hand, it takes considerable effort to produce a hyperimmune serum for the distemper virus; and not until after many injections have been made, does one obtain a good canine distemper antiserum. Hyperimmune serum is a strikingly effective treatment for fox encephalitis. I have seen dogs, and foxes too, that were in convulsions, recover following the injections of hyperimmune serum.

Acknowledgment should be made of the co-operation of several veterinarians, in various parts of the United States, in my studies of fox encephalitis in dogs. They have supplied me with either the whole carcase or specimens from the various organs of dogs that had died from distemper-like disease that apparently was not distemper. Just recently a veterinarian in the Detroit area sent us two carcases from a kennel in which an outbreak had occurred and in which none of the usual treatments for distemper had brought any response. Both of these dogs were carefully studied at the laboratory and both proved to have had fox encephalitis infection. We were not only able to demonstrate the intranuclear inclusion bodies in the endothelial cells of these dogs, but we were able to isolate the virus from the brain and have established the identity of this virus to be identical with that of the fox encephalitis virus previously isolated from foxes and from other dogs throughout the country. We have received dogs from veterinarians in the Chicago area, in the West Coast area, and from Florida, in which fox encephalitis was definitely determined to be the cause of death.

I do not know how prevalent this disease is among dogs in the United States; but from various discussions with veterinarians, it becomes apparent that this disease is more prevalent than we have heretofore realised. I shall certainly welcome any material which you veterinarians care to send me, in order that this work may be continued with a view to determining more accurately the frequency of ocurrence of this disease in animal hospitals.

Prevalence

To repeat, the prevalence of fox encephalitis in dogs is, at present, unknown, but from our knowledge of encephalitis in the fox, I feel that we have a solid foundation upon which to conduct further research on this problem. Again I solicit the co-operation of all veterinarians in submitting specimens for laboratory examination.

References

[1] Green, R. G. (1936.) *Vet. Med.* **31**. 12.
[2] Siedentopf, H. A. October, 1947.

The Preparation of Certain Permanent Specimens

At the meeting of the Central Veterinary Society on April 1st there was a demonstration on "Permanent mounts of certain small specimens—insects and liver fluke." The demonstration was arranged by Mr. W. Downing, of Cooper's Technical Bureau, but given by Mr. G. C. Brander of their staff.

We have been furnished with the following details of the method of making these preparations. The method is new, and also very practical, as the specimens are stone hard and are undamaged if dropped.

Preparation

The specimens are firstly dehydrated by passing through the alcohols and finally immersed in toluene.

Treatment of Insects.—Prior to their final insertion in the plastic material the insects are washed twice in unpolymerised methyl methacrylate monomer.

Preparation of the Embedding Materials

(*a*) Unpolymerised methyl methacrylate is obtained mixed with the inhibitor (hydroquinone).

(*b*) The inhibitor is removed by washing the solution twice in 2 per cent. KOH. This mixture at first turns dark brown, the caustic and methyl methacrylate separating. After the two washings the caustic can be poured off.

(*c*) The solution is dehydrated overnight with anhydrous sodium sulphate and is then filtered.

(*d*) A catalyst in the form of benzoyl peroxide 0·5 per cent. is added to effect the polymerisation.

(*e*) This solution is then placed in a water bath and heated at a temperature of between 80 and 100° C. As the solution tends to thicken and become gluey in consistency it is removed and cooled ready for use. At this stage it can be retained in a refrigerator or used straight away. A layer of the solution is placed in a mould so that it may act as a base for the specimen. The specimen placed on the sticky solution and adjusted in position can then be put in a bath of 30 to 50° C. and is allowed to stand overnight. Next day an additional layer of the polymerised material is added to cover the specimen and retain it in position. Occasionally there is a tendency for the legs of the insect to rise to the surface and it may be necessary to add a third layer of the polymerised material.

(*f*) When removed from the water bath the mounting material will be found to have set hard in a clear form and can then be removed from the mould.

These specimens retain their brightness and can be quite easily polished up.

CLINICAL COMMUNICATION

Rectifying Post-operative Self-mutilation (Evisceration) in a Bitch

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The subject of this report was an eight-year-old crossbred bitch, upon which an ovaro-hysterectomy had been performed to relieve an open pyometra. The bitch made an uneventful recovery from this operation until the sutures were removed on the seventh day. An hour after the removal of the sutures the bitch was found in the kennel with a mass of small intestine, spleen and omentum hanging from the wound.

The bitch was anaesthetised with nembutal intravenously, three grains giving surgical anaesthesia (weight 30 lb. approx.). When the mass of intestine was investigated it was found that the bitch had carried out a "resection" of the bowel, tearing it away from the mesentery, which was intact. The chewed ends of the intestine were trimmed off and an end-to-end anastomosis made. The bowel was dusted with thiazamide powder and returned to the abdomen, and the wound was closed with mattress sutures of synthetic silkworm gut, through peritoneum, skin and muscle, with a final row of sutures through skin, subcutaneous tissue and abdominal fascia. The bitch was given 10 oz. of glucose saline and 1 c.c. of penicillin (125,000 units) in oil.

The following morning she was found to have vomited and to have disgorged approximately five feet of small intestine. Glucose saline s/c was continued for three days and the penicillin for four days. She was allowed saline to drink from the second day onwards after operation, and food was allowed on the fourth day. The sutures were removed progressively on the ninth, tenth and eleventh days after the operation, and the bitch was discharged on the 13th day.

This case is reported because although evisceration is not a very rare accident, recovery from extensive self-mutilation such as this is uncommon.

We wish to thank Mr. J. B. White for permission to publish this communication.

ABSTRACT

[**Ketosis in Domestic Animals.** SAMPSON, J. (1947.) *Univ. Illinois Agr. Expt. Sta. Bull.* 524.]

Theories concerning the origin of the ketone or acetone bodies in ketosis are discussed. The earlier "ketolysis" theory maintained that in ketosis fat catabolism, instead of going to completion to form carbon dioxide and water, stops at the ketone stage whenever there is a deficiency of carbohydrate in the metabolic mixture. The more recent "antiketogenesis" theory maintains that optimum carbohydrate metabolism inhibits ketosis not "by increasing the utilisation of acetone bodies, but by keeping the production of these bodies down to a minimum." Following details of the chemistry and toxicity of ketone bodies, the author proceeds with a historical review of ketosis in cattle, the incidence of the disease and the progress made in the study of its aetiology. The manifestations of the disease are fully described; it is considered that to establish a diagnosis a urine test for ketone bodies is necessary and it may be advisable to carry out quantitative determinations of blood for sugar, calcium and ketone bodies. As regards treatment, the author emphatically states "carbohydrate therapy is so specific for acetonaemia of cows that unless the condition is complicated by milk fever or some other disease there is little to be gained from any other treatment." Sterile 50 per cent. glucose solution (amount not stated) is recommended for intravenous administration supplemented by 3 to 6 lb. of molasses daily for several days. Treatment with vitamin A and vitamin B_1 is discussed, but it is considered that more critical evidence is required before a final decision can be reached as to the value of vitamin A or B_1 therapy for ketosis in cattle. The aetiology, pathology and symptoms and diagnosis of ketosis (pregnancy disease) of sheep are then described. Carbohydrate therapy is recommended for treatment and it is emphasised that for success early diagnosis and prompt treatment are essential. Moderate exercise and a liberal food allowance for pregnant ewes is claimed to reduce the incidence of ketosis in ewes. Brief reference is made to ketosis in the goat, sow, rabbit, chicken, duck, dog, cat and horse.

D. W. M.

REVIEW

[**Breeding Livestock adapted to Unfavourable Environments.** By R. W. PHILLIPS. F.A.O. Agricultural Studies No. 1, 1948, pp. 182. Price 1.50 dollars. Obtainable from Documents Office, Food and Agriculture Organisation of the United Nations, 1201, Connecticut Ave., N.W., Washington 6, D.C., U.S.A.; or within the British Empire from F.A.O. sales agents in Australia (H. A. Goddard Pty., Ltd., Sydney), and in Canada (The Ryerson Press, Toronto).]

An important fact, often overlooked, in the pattern of world agriculture is that only a relatively small portion of the land area is suited to the maintenance of high yielding dairy cattle, rapidly maturing meat animals, heavy draught horses, or other highly specialised livestock. The "improved" types of domesticated animals, which have been evolved by artificial selection to highly developed degrees of efficiency in their output of meat, milk, wool or work, require optimal environmental conditions, especially a sufficiency of good quality food, in order to produce at maximum levels. The conditions most favourable to high productivity, however, are to be found only in the temperate climatic zones of the world; over the remaining, and greater, part of the earth's surface the conditions for animal life tend to be rigorous, and at times even harsh. Here, whether because of tropical heat or intense winter cold, high elevation or deep swamp, arid plateau or wet hill country, and wherever the covering vegetation is scanty or of poor quality, an animal's ability to survive and to reproduce becomes a more important attribute than its immediate efficiency in transferring forage into usable products for man's needs. In many of these less favourable areas the keeping of livestock which are adapted to withstand the local conditions is the only way in which the land may be utilised effectively.

In this F.A.O. publication, Dr. R. W. Phillips examines in regard to livestock the problem of adaptation (or adaptability) to unfavourable environments. His examination takes the form of a review of some of the more important work that has been done in various parts of the world, (i) in elucidating distinctive functional adjustment that makes animals specially well fitted for particular environments, and (ii) in developing new types adapted to specific conditions. The greater part of the studies and observations discussed by Dr. Phillips is centred on sheep and cattle, the two kinds of animals which are primarily utilised in the extensive areas of grazing land throughout the world, but reference is also made to the limited information dealing with the adaptability of horses and swine to unfavourable environments. A short section of the book gives some interesting information in regard to the livestock—water-buffalo, yak, reindeer, camel, and dromedary, and llama, and alpaca—of certain agriculturally primitive areas. These animals, says the author, each obviously well adapted to the rigorous living conditions of its own native environment, have served man for centuries, and, therefore, in the planning of improved livestock production for such areas it is important that native types of livestock be given adequate consideration, and to ensure that misguided attempts to replace them with less suitable types be avoided.

The author briefly indicates the breeding methods that could be applied to the improving of livestock in under-developed areas of the world, where the prevailing environmental conditions are generally unfavourable for the maintenance of the highly productive types of animal, which have been evolved in response to the conditions existing in those areas of intensive agriculture lying within the temperate zones of the world. In his consideration of the individual species of livestock earlier in the book, the author cites sufficient examples to illustrate the dangers of introducing the "improved," but unadapted to rigorous conditions, European types to regions providing a less favourable environment. In considering breeding methods applicable to unfavourable environments he now indicates the possibilities of improving livestock under such conditions, either by selecting within native types, by introducing more productive types from other regions where similar conditions prevail, or by developing new types adapted to specific sets of conditions.

It is, of course, recognised by the author that in many areas substantial improvement in the efficiency of livestock production can also be obtained by improving the environment, but the reviewer strongly holds the view that, in dismissing this aspect in less than a page of text, Dr. Phillips gives a one-sided view of the true nature of this problem of environmental adaptation. Livestock management, nutrition, and disease and parasite control are all factors of environment which must be counted in any consideration of animal fitness to thrive and perform efficiently under specific conditions, and, indeed, many veterinarians with long, intimate experience of livestock production in tropical regions believe that it is just these same factors which must first be improved before any

(*Concluded at foot of facing col.*)

IN PARLIAMENT

The Veterinary Surgeons Bill

Second Reading Debate in the Lords

As was recorded in our last issue, the Second Reading of the Veterinary Surgeons Bill was moved in the House of Lords on Tuesday, April 20th, by the Earl of Huntingdon, Joint Parliamentary Secretary, Ministry of Agriculture and Fisheries. Second reading was duly accorded and the measure sent to Committee. Following is the "Hansard" *verbatim* report of the proceedings.

THE JOINT PARLIAMENTARY SECRETARY, MINISTRY OF AGRICULTURE AND FISHERIES (THE EARL OF HUNTINGDON): On several occasions this House has pressed for a measure to increase the number of veterinary surgeons and to deal otherwise with veterinary surgery in this country. My right honourable friend the Minister of Agriculture and Fisheries has been equally anxious to bring forward legislation to this end. It is therefore with some gratification that I am presenting this Bill, and commend it to your Lordships for a Second Reading.

I think it is recognised that we need a great many more veterinary surgeons. Not only was this apparent before the Second World War, but the new developments in scientific thought and the new outlook on preventive medicine have greatly increased the need, particularly in regard to teaching and research. The Loveday Committee examined this question very thoroughly indeed, and recognised that the intention of the Coalition Government to maintain a healthy and well-balanced agriculture would undoubtedly call for a greater number of veterinary surgeons. The Committee also took into account other factors, including the rapidly growing needs of the Colonies. This Government have gone further than that. They have not only started in Africa and elsewhere overseas great developments which will also call for more veterinary surgeons, but have instituted a food expansion programme in which farmers will need to call on veterinary surgeons to a far larger extent—particularly if they can add to the number of livestock which we hope will be built up as soon as feeding-stuffs allow.

Disease is the great enemy we have to face. Here I would like to pay a tribute to the veterinary service, which has in the past made such gigantic strides in fighting that evil. It has eliminated such diseases as rinderpest, pleuro-pneumonia and sheep pox, which at one time ravaged our herds. Even when we come to the terrible foot-and-mouth disease our losses, great as they are, are nothing like the losses which are suffered by other countries. That, I think, is due to the skill and hard work of the veterinary service. But we know that we need, and must have, more research and greater practice. Unfortunately at the present time, and in face of the shortage, only about 150 veterinary surgeons are being turned out every year.

IMPORTANCE OF THE PROFESSION

I do not necessarily refer to your Lordships' House, but I sometimes wonder if in the country generally we realise the great importance of this profession. It goes back, as some of your Lordships will know, to pre-Christian times. Even the early Crusaders had their Corps of Marshals to look after their chargers; and in fact they became so important that in the 15th century the Aldermen and Mayor of the City of London excluded them from jury service. Your Lordships will see that in this Bill we have followed that excellent precedent and excluded them again. It was in 1792 that the first veterinary school was founded in London. In 1823 one William Dick founded a college in Edinburgh, and in 1844 the Royal College of Veterinary Surgeons received its Charter. But it was in 1881 that the real foundation of the profession was put in proper statutory form. In that year, under the Veterinary Surgeons Act, the register of the Royal College was recognised by Statute and, incidentally, a supplementary register of unqualified practitioners was also instituted. It may interest your Lordships to know that there are two members of that register still alive to-day. They are both over 90, and one of them, I think, sometimes practices. Your Lordships will see that their rights are safeguarded under Clause 29.

If you will forgive me that short historical interlude I should like to come to the present position. At present, examinations are conducted by the Royal College of Veterinary Surgeons, and this is the only avenue into the profession. Courses of instruction are given by Liverpool University, the Royal Veterinary College, London, the Royal (Dick) Veterinary College in Edinburgh, and at the Royal Veterinary College in Glasgow. As I have said before, these colleges turn out about 150 qualified men a year. In addition, of course, there are a number of unqualified men who practise all over the country. This Bill sets out to alter that position.

I am glad to say—and I think it is fair to point this out—that this Bill is outside politics; there are no Party politics in it at all, and the contents, except for one or two minor points, are generally agreed and supported by the veterinary profession, by the universities and by the other interested bodies. As your Lordships have probably observed, four major sections of the Bill each deal with an important point in the problems. Clause 1 of the Bill allows the Privy Council, after consultation with the Royal College of Veterinary Surgeons, by order to direct that a veterinary degree given by a specified university shall entitle the holder to be put on the register of veterinary surgeons and become a member of the Royal College. That, I think, is the most important point of the whole Bill—that we have incorporated, or hope to incorporate the universities into the scheme to provide the education for veterinary candidates. After all, it is their function to train, teach and examine. Their examination will qualify those members to a full place on the register, and to become fully qualified veterinary surgeons. We hope, when we have done this, that very soon in the future the veterinary colleges in London and Edinburgh will be amalgamated with the respective universities, and that new schools will be founded in the Universities of Bristol, Cambridge and Glasgow. When that happens Glasgow Veterinary College will, of course, cease to provide training. The output of those six universities should be about 220 graduates per annum. But I would like to call your Lordships' attention particularly to this point in the Bill: that further universities can be added; so, if we see that that number is not enough, more can be brought in. The Privy Council are empowered to make further orders as the need may arise.

I think everyone will agree that it is of vital importance that the study and examinations should be of the very highest standard. The Royal College of Veterinary Surgeons, as was suggested by the Loveday Committee, should be given a further responsibility and, under this Bill, we propose that they should appoint people to inspect the universities—the premises, the equipment and courses of study—and report back to their College. Further, they should have the power to obtain reports on the examinations. I would like to make it clear that they are not to interfere in the teaching or in the examinations, but are merely to report their opinions to their College who can, if it wishes, raise the matter with the university. Finally, although in practice it is almost certain that the universities themselves would be only too anxious to alter any point which did not satisfy the Royal College, the Privy Council can, if they wish, for their ultimate safeguard, revoke the order allowing the veterinary degree of that particular college.

The next point that arises is in regard to Clauses 9 to 12, and concerns the constitution of the Royal College of Veterinary Surgeons. Originally, all members were elected by the profession; we now propose that only 20 members should be so elected, that owing to the new arrangement the Privy Council should elect four, and that each university should elect two. One of these two members from each university is to be a member of the veterinary college. That will be the new arrangement. As in most of these cases, finance is of fundamental importance. As my right honourable friend the Minister of Agriculture and Fisheries has announced in another place, His Majesty's Government are prepared to provide substantially increased financial assistance to veterinary education,

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real progress can be made in developing more productive types by selection within the native breeds.

Despite the criticism of a particular viewpoint voiced by the reviewer in the preceding paragraph, there is no other reservation in commending Dr. Phillips' review to all workers interested in livestock improvement, and especially to those concerned with animal production in the many areas of the British Commonwealth where environmental conditions are unfavourable to the development of the more productive types of domesticated animal. The material assembled in this small book directs attention to the lessons to be learned from previous efforts to introduce improved stock from the temperate zones into regions having less favourable environments, and also to the results of experiments carried out to develop new types of animal better adapted to particular conditions than any of the existing types.

Its study should preserve the planners of increased world animal resources from some of the errors that have been made in the past through omitting proper consideration of the association of the animal and its environment.

The University Grants Committee and the two Agricultural Departments have already set up an inter-departmental Committee under the chairmanship of Dr. Trueman, the Vice-Chairman of the University Grants Committee, to look into the whole question of finance, and to make recommendations. In fact, the Committee have already begun visiting the universities and colleges.

The Unqualified Practitioner

Now I come to what is probably the most difficult and most contentious point in the Bill; that is, the one with regard to the unqualified practitioner. As I said before, up and down the country there are a number of these men working and giving service in various ways—some of them very satisfactorily. A large proportion of them have been so working for many years. Mostly they have been employed in looking after dogs, cats, and other small domestic animals of all kinds. But apart from the undesirability of having a lot of unqualified men taking on this type of work, the biggest drawback would clearly be discouragement to intending new entrants to the profession. If they saw a large number of unqualified people practising, young folks who had thought of becoming veterinary surgeons would not be likely to come forward and undertake the strenuous and difficult course which is necessary in order to become qualified veterinary surgeons.

The Chancellor Committee which reported in 1945 examined this question very carefully, and, with one or two minor reservations, His Majesty's Government accept the Committee's findings. The present position is that anyone can start the practice of veterinary surgery so long as they do not imply in any way that they are members of the Royal College of Veterinary Surgeons, or use the title of "veterinary surgeon." This Bill proposes to prohibit entirely in future the practice of veterinary surgery by unqualified persons, only excepting certain treatment and minor operations to relieve pain, first aid in emergency, the treatment of an animal by its owner, and, in certain circumstances, the treatment of farm animals by men engaged in the agricultural industry.

It has always been a principle of Parliament, and a very important one, that whenever a profession like this is restricted, some special provision should be made for existing unqualified practitioners who might otherwise lose their livelihood. So, in Clause 6, the Bill follows the general pattern, and the Royal College is asked to set up a supplementary register on which they can register existing unregistered practitioners who have reached the age of 28 years, are of good character, and have been practising for not less than seven out of the last ten years. There are also special provisions for men who have had their practice interrupted by work of national importance, or as the result of being in the Services. People on this supplementary register will be subject to the full discipline of the Royal College. They will have the advantage of being able to buy the necessary drugs and to use the title of "veterinary practitioner" as set out in Clause 8. I would like your Lordships especially to note that the title of veterinary surgeon is reserved exclusively to persons on the register of the Royal College of Veterinary Surgeons. Clearly as time passes the supplementary register will become smaller and smaller. I suggest that this scheme provides a fair and practical way of solving what is a rather difficult problem.

Earl De La Warr: Could the noble Earl give us any idea as to what is the number of these unqualified practitioners?

The Earl of Huntingdon: I am afraid I could not. As they are not registered it is only by devious ways that we can arrive at any estimate of the number at all.

Following out of this, the Bill, in Clause 7, deals with the position of animal welfare societies, such as the Peoples Dispensary for Sick Animals of the Poor. These societies are supported entirely by voluntary contribution, and look after animals belonging to people who cannot afford to go to the ordinary veterinary surgeon. I understand that the societies agree with the principles of the Bill. They agree, also, that they should employ qualified men. On the other hand, they point out that there is such a shortage of qualified men that if they were restricted to the employment of such men they would have to cut down a large part of their work and shut dispensaries all over the country. Of course, the last thing His Majesty's Government would wish to do would be to interrupt the good work which is carried on. They wish, in fact, to help these organisations as much as possible. This is the way we propose to do it. By Clause 7, my right honourable friend the Minister of Agriculture and Fisheries will be able to grant licences to people employed by these animal welfare societies, but only in cases where they are dealing with people who cannot afford the services of a veterinary surgeon. Eventually, when there are enough veterinary surgeons, then gradually the number of fresh licences can be reduced until none will be necessary and only qualified men will be employed in this work.

The next part of the Bill, Clauses 13 to 19, deals with the disciplinary powers of the Council. At present only the whole Council has the power of expelling a member; in future it can be done by a committee consisting of nine members of the Council, including at least four elected members of the Council and at least one member of the Council appointed by the Privy Council. When it is a question of an unqualified man, who is on the supplementary veterinary register, four persons appointed by the Agricultural Ministers are to be added to this disciplinary committee.

I come now to the last important proposal of the Bill—the regulations with regard to those practising veterinary surgery in Eire. The present position, as most of your Lordships know, is that only veterinary surgeons on the register are allowed to practise in Eire. The qualification for this register is examination by the Royal College of Veterinary Surgeons. The veterinary surgeons in Eire have the right to representation on the Council of the Royal College. The fact that this new Bill is being brought in clearly makes a new Agreement between the two Governments necessary and we have been in touch with the Government of Eire on this question. Your Lordships will understand, however, that certain details of the Agreement must depend upon the provisions of this Bill in its final form as passed by Parliament. Therefore, in Clause 20 we have provided for reconciling the Bill with the new Agreement.

Lord Harlech: Is this limited to Eire? Does it not apply to other Dominions? What is the position of men with Australian or Canadian qualifications, practising in this country?

The Earl of Huntingdon: This is not a question of qualified men from Eire practising in this country; it is a question of the Eire veterinary surgeons being represented on the Council of the Royal College in this country. I will look into this point, but, so far as I know, this does not affect Dominion status at all; it is a completely separate matter.

I think that is the main outline of the Bill. There are a few other provisions of lesser importance which your Lordships will, no doubt, have noted. I think, however, that I have given you the essentials of the Bill. I should like to repeat that this is a non-political measure and it commands, generally, the support of the veterinary profession, of the universities, and of the other bodies who are concerned. I also submit that there is a great need for the Bill, and I ask that your Lordships will give it a speedy passage through this House. I beg to move.

The Debate

Earl De La Warr: I should like briefly to thank the noble Earl for the way in which he has put this Bill before the House. He has done so with extraordinary clarity, and I think your Lordships will agree with what he said to the effect that it is really a non-controversial measure, except perhaps in respect of certain small points which I feel are perhaps best dealt with in the Committee stage. Apart from those points, this is an agreed measure. Possibly, our congratulations to the Government would have been rather warmer had this Bill come before us 12 or 18 months ago. We have been waiting for it for a very long time. In view of the importance of the subject—which no one could stress more strongly than the noble Earl has done—it is difficult to understand why we did not have the Bill before us some time ago. We know there were certain disputes between the profession and the universities, with the Ministry on the fringe, but those are now satisfactorily settled. The less we go back on old difficulties that have been dissolved, the better, but I should like to take this opportunity, as one who once or twice made certain remarks about those controversies, to congratulate those who have managed to settle their difficulties.

I cannot help thinking that the noble Earl could have put a higher target before us. He told us that the present output of veterinary surgeons per year is about 150 and that the Ministry are hopeful that the figure may be raised to 220. In the light of the present position that figure is quite inadequate. If we are to increase production, particularly of those foodstuffs of which the world is most likely to be short for a very considerable time, we have to develop our livestock. Whilst I speak as one second to none in my belief in doing everything for the better breeding of animals, I cannot help feeling that to-day the management of animals on the farm leaves much to be desired and that little can be done with better breeding unless there is better management. And no one can help more with regard to better management than the veterinary surgeon.

One of the most welcome developments in the profession lately

has been that, I will not say less and less time is given to critical disease, but rather that veterinary surgeons have made themselves more and more the advisers and helpers of farmers in bringing about greater animal health. It is not only a matter of this country. Lately I have been travelling through a small part of the British Empire and Commonwealth. Everywhere I have found exactly the same problem and exactly the same complaint. There is a certain section of opinion in this country which hopes in the future that we will be fed from the British Empire. Wherever I have gone in the Empire, I have found people perplexed by the problem of how to feed themselves. Wherever I have gone there has been an outcry for more assistance from the veterinary surgeon. In East Africa, the Rhodesias, and South Africa, I have found the same problem. They want more veterinary surgeons. It would be impossible to send better or more welcome ambassadors of Empire, ambassadors of Commonwealth, to these great Dominions, than the "vet."

How can we increase their numbers? I do not feel it would be profitable at the present moment to go into the question of the number of colleges. I would like to make one suggestion for consideration—that the Government should consider giving more assistance to intending students. I gather that at the present time one can get assistance either by local government scholarship or by a limited number of Ministry of Agriculture scholarships—I think ten a year. There is also assistance given under the ex-Service scheme. Whether the Veterinary Educational Trust, now called the Animal Health Trust, is still giving help, I am not sure. I feel that this assistance should be extended. Only within the last three weeks I heard of an applicant for a Ministry of Education scholarship who, when he revealed that he was going to become a veterinarian, was informed that the scholarship was not available for a veterinary degree. I do not know the details, but I ask the noble Earl to look into this matter. The point is not whether they should be Ministry of Education or Ministry of Agriculture scholarships. The point is that there should be greater assistance.

With regard to the Bill itself, I do not think it helps proceedings to try and conduct the Committee stage during its Second Reading, but it is sometimes helpful to the Minister to know of certain points to be raised. There is one small point—small, that is, in words, but of immense importance—which arises in Clause 5, subsection (2) (*b*), which begins:

"Any minor treatment, test or minor operation . . ."

The noble Earl knows that the question of testing is of the most important character and includes such things as a tuberculin test. Why do we not have a minor test? I do not ask for a reply, but I ask the noble Earl to give this matter serious consideration.

Unregistered Practitioner not a Veterinarian

There is another point on which I cannot understand why there has not been more disagreement. It was made clear in the Chancellor Report that the Committee, after considerable discussion of the problem, believed that it should be made plain beyond question that the unregistered practitioner was not a veterinarian. It is all very well to sit in an office and say that there is a great difference between a veterinary surgeon and a veterinary practitioner, but we ordinary people living on farms very seldom get beyond the first syllable—"vet." To think that the ordinary farmer is going to distinguish between a veterinary surgeon and a veterinary practitioner is really quite childish, especially when we find that the largest division of the National Veterinary Medical Association calls itself the Society of Veterinary Practitioners. Yet those two words, "veterinary practitioner," are now to be taken as describing the unregistered veterinarian.

This is an agreed Bill. We are anxious that it should carry all sections with it and that it should give both confidence and status to our great veterinary profession. I ask the noble Earl to consider this point again, with a view to adopting the recommendation of the Chancellor Committee, which is to call the unregistered veterinarian an "animal practitioner." Whatever the term, let us make it absolutely clear for the benefit of those men who give up five years at the beginning of their lives to train themselves as veterinary surgeons. There may be one or two other points we want to suggest, but that will be done at a later stage. I again congratulate the Government on this Bill and wish it speedy passage.

Viscount Bledisloe: I too would like to congratulate the Government on the introduction of this Bill. I warmly welcome it on behalf of the veterinary profession, properly so called, on behalf of all stock-owners in this country, and particularly on behalf of the general public, as consumers of milk and meat. It is a somewhat belated implementation of the Reports of two Committees. One is the Loveday Committee, who made their First Report no less than ten years ago, and their Second Report in 1944—the latter, of course, dealing with the subject of veterinary education. The other Report is that known as the Chancellor Report, which dealt only with the problem of unqualified veterinary practitioners. The general purport of those Reports may be summed up, first of all, as an insistence upon the necessity of a far larger number of veterinarians being available to the animal-owning community of this country, and, secondly, that unqualified animal practitioners must gradually be put out of practice.

As some of your Lordships may remember, on April 11th, 1945, I initiated a debate on milk, in the course of which I quoted a certain paragraph from the Second Loveday Report of 1944, and I venture now to quote it again. It is to this effect:

"Recent estimates put the animal loss to the nation in livestock and livestock products due to animal disease at not less than £30,000,000. The bulk of this loss is deemed to be ultimately preventable, but only if expenditure upon veterinary training on a considerably greater scale than at present is incurred."

Full University (Faculty) Status

In the Second Loveday Report the Committee set out their scheme providing for an annual output of at least 220 veterinary graduates, not only from the existing schools and colleges—those of London, Edinburgh, Glasgow and Liverpool—but also at Cambridge and Bristol. If I understand the noble Earl aright, it is contemplated establishing veterinary courses in these additional universities. But there is one notable factor about that. The Committee particularly stressed that veterinary study should be given full university status. If that means anything at all, surely it means that there should be a veterinary faculty at these universities, and that veterinary instruction should not be merged and lost in the meticulous meshes of some other faculty, either the faculty of human medicine or a generalised faculty of science.

The veterinary profession, properly so called, feel strongly upon this point. I should like to emphasise it, because what they desire above all is to be given a proper professional status in this country—a status of equal standing and importance to that of the medical profession which is concerned with human diseases. That status exists in several other countries in the world. I do not know any civilised country in which the profession of veterinary practice takes relatively so low a position in relation to medical practice as it does in this country. There are certain countries (I remember that Denmark is one of them) where not only is the veterinary profession on an equal footing with the medical profession, but many of those who belong to the one profession belong also to the other. In that connection, I would remind your Lordships that if there is one science more than any other which calls for further development in the light of modern discovery, it is that of comparative pathology—that is, the bearing of animal disease upon morbid conditions in human beings.

The Chancellor Report, to which in the main this Bill gives expression, recognises that unqualified animal doctors should gradually be thrown out of practice. What I should particularly like to ask (my noble friend Earl De La Warr has already asked this) is what prospect there is of materially increasing the numbers of qualified veterinary practitioners, not only for the requirements of this country, but also, as has been suggested, for the requirements of the whole of the British Empire, so far as other countries in it are unable to provide for their own requirements. I happen to know that there is a serious dearth of qualified veterinarians in New Zealand; there is a similar dearth in Australia. In Australia, under the aegis of a veterinary faculty, they have developed to some extent the prospect of a much larger output of veterinary surgeons. So far, nothing of the sort has been done in New Zealand, and up to two years ago they were looking almost pathetically to the old country to provide those qualified veterinarians whom they want so much. Now—I rather regret it—they are looking to Australia to help them. But Australia already has its work cut out to provide sufficient veterinarians for its own requirements.

In the Second Report of the Loveday Committee a significant statement was made, to which in the course of the milk debate I ventured to refer, and to which, with the leave of the House, I am going to refer again. They appended a schedule setting out the total number of veterinary surgeons in the various European countries, the number per million of their population, and—what is more important—the number of veterinary surgeons per million of the larger domestic animals. In this schedule, Switzerland comes first and Belgium second; German and Czechoslovakia are bracketed third, Denmark comes fifth, the Netherlands sixth, Norway

seventh, Great Britain eighth and France ninth. The only country other than Britain which had less than 100 veterinary surgeons per million of the larger domestic animals is France, and she is the only one of the Western European countries which has an average milk yield per cow lower than ours. This surely has a significant bearing upon the relation between milk yield and veterinary supervision or control. I venture to suggest that although the Loveday Committee indicated that there ought to be an annual output of at least 220—and the noble Lord opposite has referred to the same figure—in the light of modern developments, modern scientific knowledge and, as my noble friend in front of me pointed out, the enormous expansion—and, in the interests of the public, desirable expansion—of livestock in this country, that figure is not nearly large enough.

Having said that, I am going to refer shortly to three points, to two of which my noble friend Lord De La Warr has already referred. He referred to the title which is to be enjoyed in future by the unqualified animal practitioner. I use the word "animal" advisedly, because, first of all, what is the difference between a veterinary surgeon and a veterinary practitioner? There is only one difference, if the words are to receive their natural interpretation. A surgeon has a much more limited function to perform than a practitioner, who has to be not merely an animal surgeon, but an animal doctor. Now you are allotting this more comprehensive term to the man with the more limited qualifications. Surely there is something wrong there. After all, the important part of that designation is the term "veterinary," and if it means anything at all surely it must mean the person who is qualified as a veterinary practitioner. You are now allowing the term to be appended to the future designation of the unqualified practitioner.

With regard to the term "minor." It appears that so-called minor operations may still be carried out by unqualified practitioners. I would venture to ask that in the Bill itself the term "minor" be more clearly defined. If it refers to tuberculosis, contagious abortion or mastitis in its various forms, I suggest that an unqualified practitioner is not a person who will inspire confidence on the part of the stock-owners of this country in curing those all-important diseases which are so seriously limiting the output of milk. As your Lordships probably know, The Royal Agricultural Society of England are making a strenuous effort, with the full approval of the Ministry of Agriculture, to eliminate bovine disease, and nothing will give them more encouragement than the fact that the persons concerned with these more serious bovine diseases are qualified veterinary practitioners, and only qualified men. I do not want to take up further the time of the House, except to emphasise one point which I mentioned at the beginning of my speech. If we want people of the right type, and deserving the new position which you are allocating to the profession, we must improve their status and make it perfectly evident that we are doing so. I venture to believe that if we do, we shall have a far larger number flowing into this enormously important national profession than we have to-day. I warmly welcome this Bill, and if I appear to be in any sense a critic of it, I assure your Lordships that I desire only to be a constructive critic. I am in no way hostile to the Bill: I very warmly welcome it, and I hope that it will receive the full approval of your Lordships' House.

Lord Lucas of Chilworth: My intervention in this debate is prompted by the experience which I have been fortunate enough to enjoy during this last two years of sitting under two Committees. They have brought me into contact with the veterinary profession and allowed me to appreciate not only the great work which the qualified veterinary surgeon has performed in the past, but also the very great responsibility which will rest upon his shoulders in the future. I do not think it is realised by the ordinary citizen of this country how great a responsibility rests upon the veterinary profession, not only in connection with the health of the ordinary citizen but for the prosperity of what must always be one of this country's greatest industries.

I join with the noble Earl, Lord De La Warr, in stressing the effect that animal health has on the ultimate health of human beings. I had a lasting impression made upon my mind when it was given before me in evidence that the vast bulk of the meat which is offered for sale in this country is, judging from the highest desirable standard of nutrition, unfit for human consumption.

Prestige of the Profession

I think it is necessary that we should do everything not only to increase the numbers but also to increase the status and the prestige of the veterinary profession. I think that this Bill does that. It gives university status to the veterinary profession. It allows the veterinary student to pursue his studies in the wider and more advantageous communal atmosphere of a university, which I am sure the noble Viscount, Lord Bledisloe, with his wide experience of these matters, will agree is wholly desirable. It will also give an added incentive to the younger man to come into the veterinary profession. I think it will be universally agreed that that part of this Bill which deals with the educational advancement of the veterinary profession is wholly desirable, and will meet with no criticism whatever.

I do not intend to enter into the controversial side. The noble Earl who spoke on behalf of the Opposition said that, except in respect of one point, any Amendment which could be suggested to this Bill was only minor. The exception was the title to be enjoyed by the unqualified practitioner. There are many members of your Lordships' House who remember the battle which raged on this particular subject when the qualifications of the dental profession were being discussed. I believe I am right in saying—and I speak subject to correction—that at that time the unqualified dentist, although debarred from calling himself a dental surgeon, could call himself a dentist or a dental practitioner—as a matter of fact, anything other than a dental surgeon. As the noble Earl, Lord De La Warr, has said, this is an agreed Bill, and frankly I do not think it is worth quarrelling over this point, which has been established in this country on so many previous occasions. I do not think it is worth while losing the main chance of something which can be of great help to the future of the veterinary profession. I thought the noble Earl's congratulations to His Majesty's Government rather like opening the horse's mouth and having a look at its back teeth.

Earl De La Warr: Did the noble Lord ever buy a horse without doing that?

Lord Lucas of Chilworth: I would counsel the noble Earl to accept more Bills without looking inside the horse's mouth. He said he could not understand why we did not have this Bill 12 or 18 months ago. I congratulate the Minister of Agriculture and the Royal College of Veterinary Surgeons on being able to reach such a large measure of agreement on such a contentious matter, agreement which appeared to be entirely out of the question two or two and a half years ago—a period in political history of which the noble Earl has far greater knowledge than I have. Therefore I am not going in any way to qualify my congratulations to my noble friend, to the Minister, to the Royal College, and indeed to all those who have been able to agree upon such a splendid measure, one which will redound to the credit of the veterinary profession and be to the benefit of the citizens of this country.

Lord Harlech: At this late hour I will not detain the House more than a short time. My memory on this subject is quite a long one. It is exactly a quarter of a century ago, when I was Under-Secretary for the Colonies, that I was made chairman of an interdepartmental committee to survey the methods of training of scientists of various kinds. The result of our enquiry—which was not for publication—was sent to the Lord President of the Council, the Department of Scientific and Industrial Research, and the veterinary side of the Ministry of Agriculture. That was 25 years ago; and at long last we see real progress. I congratulate the Government on producing this Bill. I agree it has not been easy—it never is easy. The Loveday Committee made it perfectly clear that the status of a profession cannot be raised merely by nomenclature or by passing Acts of Parliament, but that in the future veterinarians must be gathered into the same sort of educational process as that of every other scientist—namely, university status, university degrees and university faculties.

I entirely agree with noble Lords who have stressed the point that before any university is recognised for a grant or anything of the sort for training veterinary surgeons of the future, it should establish a proper faculty. It is not only a question of numbers that are needed; it is quality, and quality of education. There has been far too much of the old Camden Town tradition—which I hope we are getting away from. After all—all honour to it—it was founded over a century ago, and it has dominated the Royal College. As one of its eminent professors said to me: "When the milch cows left London we went to the dogs." They provided the material on which we learnt our job. A hundred years ago there were 50,000 dairy cows being milked daily inside London; and the whole transport of this city was horse transport. The conditions were quite different. I hope the Ministry of Agriculture will realise the vital importance of veterinary training in the future and the importance of linking it up with animal husbandry and farm practice. After all, one has only to look at other countries. Utrecht, for instance, is famous in Europe for its standard. It has its own animal hospital and a whole chain of farms for research purposes just outside the city of Utrecht. There is Buitenzorg in Java where they train Indonesians and have a fully qualified staff such as we have never dreamt of having. That sort of thing is long overdue here.

My only quarrel with the noble Earl, Lord Huntingdon, who introduced this Bill to-day is that he persists in believing that we

may be able to get through with the numbers of veterinarians that were recommended in the Loveday Report. I have sufficient knowledge of this country and of the Colonial Empire to say that I do not believe you will be able to carry out the urgent reforms or fulfil the major needs on an output of 220 qualified men, when it is agreed that the unqualified practitioner is going gradually to be weeded out. You cannot do it unless you double those numbers—I say that emphatically. I saw enough of it when I was at the Colonial Office—the heart-breaking job of getting an odd "vet" or two from Ireland, from Canada, and then from Australia and from New Zealand. South Africa had to provide for its own and neighbouring requirements as well as its great research organisation and for the terrific problems of cattle diseases in Africa. No, the qualification must be full university qualification and the numbers must be not merely doubled but trebled in view of the needs of the Colonial Empire that is still subordinate to the Colonial Secretary, and also of the animal industry of this country.

Look at the position in regard to animal tuberculosis. It is a scandal that the progress being made in this country is so slow. Look at America and the Province of Ontario and see what they have done in this respect. In this country there are two bright areas. One is South Wales—the three adjoining counties of Pembroke, Carmarthen and Cardigan, which as regards progress made and in spite of terrible shortages of veterinary officers, are outstanding compared with any county in England. It has been done partly by the use of large numbers of unqualified assistants working under veterinary officers. They have made real progress in cleaning up whole districts, area by area, and eliminating tuberculosis from the herds. The other area is Ayrshire. Then look at the number of producers of T.T. milk in the great dairy county of Cheshire. It is an absolute disgrace that a percentage of the dairy herds, from one end of that county to another, are riddled with tuberculosis. There are other counties as bad. But you cannot do, and you will not be able to do, what you must do in the interests of the health of the animals, and of the prosperity of the farmers and the human being, unless you build up a much larger veterinary force and have a much bigger drive behind it in the Ministry of Agriculture.

Let me say a word now about the unqualified practitioners. Personally, I do not care what they are called. All I know is that, although they ought to disappear, the idea that they can be cut off at once is utterly impossible. There is hardly a qualified veterinary surgeon in the country who is not absolutely dependent on their assistance, wherever he may be. The qualified men are not available. They would be the first to admit it. However, sooner or later we have to eliminate the unqualified practitioners, and eliminate them completely. It is no use saying, "We will leave them to deal with dogs and cats." The whole animal kingdom has to be considered in this matter, and considered as one. Let me stress this point. I am particularly glad that there is a clause in the Bill—I hope it is not controversial—that will add to the Council a few people from the universities and from nominations by the Privy Council. I hope they will put on the governing body of the Royal College a first-rate biochemist and a first-rate physiologist from outside the veterinary profession. We have to tone up the whole corpus and character of the five (probably, it will soon be six) years' training, the type of content of the education and the examination qualifications. I am sure that we must do that if we are to do our duty by the animal industry of this country and by our Colonial Empire.

I hope the Ministry of Agriculture will have an easy time with the Treasury. They ought to be able to convince them easily, on facts and figures, that this is one of the finest investments that this country could make, and to persuade them to give liberal grants for the new faculties, not only at Cambridge and Bristol, but also at other universities, for development and for the improvement of the equipment and the facilities at the existing universities. They must have field stations; they must have stations outside Liverpool have one now in the Wirral peninsular. I understand that the "Royal Dick" is probably moving out of Edinburgh. By all means let them keep in touch with the rest of the university—it is part of their work there—but the practical work in a field station and on the associated farms is an integral part of any proper education for the type of veterinary surgeon we require.

Preventive Veterinary Medicine

The word "surgeon" still suggests somebody who merely operates with a lancet. We have to get much more firmly planted in the minds of the teachers and those qualified to teach the whole modern idea of preventive medicine. Preventive medicine is the secret of public health, and we have to get public health into the animal kingdom. The whole thing is an essential part of our life. It is economically necessary, it is nationally necessary and it is certainly imperially necessary. I hope that in all these matters the Secretary of State for the Colonies will work thoroughly with our Minister of Agriculture and Fisheries and with the Department of Agriculture for Scotland, to make this Bill a milestone in the history of veterinary srgery and a really big effort to expand a profession which has long needed the impetus, the encouragement and the expansion that our situation to-day demands.

Lord Amwell: At the beginning of the few words that I intend to say this evening I should, according to custom, disclose the fact that, as a member of the Council of Management of the People's Dispensary for Sick Animals, I have a direct interest in Clause 7 of the Bill. The discussion has covered the field of veterinary practice and the need for a greater number of veterinary surgeons in the country, and also the question of the unqualified veterinary or animal practitioner. I would point out, with regard to the phrase, "animal practitioner," that whatever may be said in its favour it is not good English, because the animal is certainly not the practitioner; "veterinary practitioner" is more in accordance with the proper use of such words. However, that is just a minor point. I myself took part in some of the negotiations that have culminated, I think very successfully indeed, in the measure that is before your Lordships this evening. I would like to welcome it and to congratulate the Government upon the way in which the measure has been drafted. I have had a quarter of a century's experience in another place. I have had contact with a good number of measures that have become Acts of Parliament, but I can recall hardly any Bill which was so well drafted as this one. It is quite clear what is meant. There is not too much verbiage about it, and it seems to me to cover the ground.

I am afraid that I must agree with a number of noble Lords this evening about that figure of 220. It is the figure suggested by the Loveday Report, but consider what that means. Five years, or more than five years, are required for the training of a veterinary surgeon. That means that you begin to get results from the 220 in about five years' time. Of course, the five years is an estimate, but I do not think it is open to any serious question. My estimate is that so far as agriculture alone is concerned, and so far as this country alone is concerned—let alone the Dominions and the Colonies—it will be 20 years before we have sufficient veterinary surgeons to deal with a position similar to that facing us to-day. It is a position which is not improving. A number of noble Lords this evening have referred to the question of the public value of this measure. I am sure that the general public do not realise, even if they read much about the Bill in the ordinary Press, the tremendous importance to human health of this measure.

May I occupy a little time—I will not take long—in dotting the i's and crossing the t's of some of these statements about animal health and the need for veterinary surgeons in the farms of this country? It was only in 1934 that the Committee on Cattle Diseases of the Economic Advisory Council said that 50 per cent. of dairy cattle were disposed of on account of disease, that the average productive life of dairy cattle was four and a half years (only half of what might be expected if they were free from disease), that 40 per cent. of cows were infected with bovine tuberculosis and the same number with contagious abortion. The official computation mentioned by that same Committee's Report was that the annual national loss from four cattle diseases alone is 20,000,000. That is the economic loss, but the amount of disease among cattle which is not known to the ordinary public must be stupendous.

There was also a Report of a Committee of the Ministry of Health—I am not quite sure of the year, but it was in the middle of a decade between the two wars; I think about 1936 or 1937—where an illustration was given of the appointment by one local authority of an additional meat inspector—one meat inspector. This was a large industrial city in this country and, as a result of the appointment of that additional inspector, it was found in one year that there were 1,000 per cent. additional cases of diseased pork in that city. I do not know quite what that means because 1,000 per cent. is really an impossibility. Considered in the way in which that phrase is popularly used, it seems a tremendous number, but I am quoting from the statement which was made. 1,000 per cent. more cases of diseased pork were discovered in one single year; that would be ten times more. There was, in addition, an increase of 120 per cent. in the number of cattle found to be diseased. I do not know what would have happened had they appointed two inspectors, because those figures give no indication of the real facts, only an indication of what the facts might well be.

There is no doubt that the position to-day is appalling, and compared with other countries we in this country are very backward in regard to veterinary services. There are 94 veterinary surgeons per 1,000,000 farm animals in Great Britain, compared with 148 in Denmark and 247 in Switzerland. Surely that indicates that something more than a beginning of even 220 additional veterinary entrants to college study in a single year is required. The aim must be very much higher. There is tremendous scope for veterinary surgeons. That brings me to the question of the unqualified practitioner. I will not enter into any discussion about

matters which have caused a certain amount of controversy. I think they have been successfully dealt with, and settled, by a reasonable compromise accepted by all sides. But the words "unqualified practitioner" can be used very unfairly. Technically, of course, they mean the practitioner or animal doctor who is not a member of the College, one who has had no college training. That is really all it means. It may include the "quack" of the worst type, but it may include many people who have had vast experience and really good training in the treatment of animals. The organisation to which I have referred and for which I have some responsibility, whatever may be said of it—and it may be open to criticism in many ways—does give a high standard of training to its men, as has been recognised by past Presidents of the Royal College of Veterinary Surgeons. Though it may be technically correct to call those people "quacks" in the first place, to speak of "unqualified practitioners" as though it implies incompetence, does hurt at times, and we have to take that into account.

I think the noble Lord who has just sat down was correct when he said that, so long as there is such a tremendous unsatisfied demand for veterinary surgeons in this country it is a quite impossible prospect to say that the so-called unqualified practitioner should at once be completely wiped out. The controls amount simply to control by the Ministry of Agriculture and Fisheries; and that is surely a far better thing than allowing the matter to go on with hostility and division, as unfortunately has been the case for some time. I hope the future, at any rate, will show good will on all sides; and I say to the Veterinary College itself that at any rate those whom I know who have connection with the "non-college veterinary practitioner," as he has now come to be called, have every desire to work in harmony with the Royal College for the benefit of the community, the animals of the community and of agriculture and agricultural animals, and to bury any hatchet that has existed in the past so that we can work together to deal as adequately as possible with these problems. After all, the animal which is dealt with by societies that depend upon voluntary subscriptions is not quite the same animal as the farm animal, and in the training of the P.D.S.A. the farm animal is excluded. We think the rest of the training is adequate, but we are prepared to make that training even higher than it is. We are quite prepared to accept any control and advice to that end from the Ministry of Agriculture or from the College. But that question involves a human question too, because there are a vast number of people who do not know how to look after their animals, and who inflict a great amount of pain and suffering on them by reason of their ignorance. Therefore, you must add to the question of treatment some educational side, which is something the P.D.S.A. tries to do. That is all I want to say, because I do not want to advertise one association as against any other in a debate of this character.

The question of what is a major or a minor operation is, I believe, a matter which will be dealt with by regulations issued by the Ministry. It is a very difficult question. What do you mean by "the nursing of animals?" The College have long ago given up that problem; they have refused to define "nursing." I think we can find some kind of definition, so that the case that ought to go to the fully trained surgeon—by which I mean the qualified man—goes to him without any question. There is, however, scope for those possessing a high degree of qualification, and great knowledge and experience in the treatment of animals, to deal with millions of animals that would not otherwise be dealt with. So long as there are so few veterinary surgeons, if you were to wipe out altogether the unqualified man, instead of merely controlling him, you would leave millions of animals in this country to a life of misery, and often of torture. I think we have here a solution to this problem, and I end by again warmly welcoming this Bill. It is the result of careful negotiation between people who, after all, have very much at heart the interests of both the country, from all the points of views that have been discussed, and of the animals of this country.

Government Reply

The Earl of Huntingdon: It has been extremely gratifying to receive such a warm welcome for this Bill from all parts of the House, and it will be very satisfying to my right honourable friend to realise that the considerable amount of thought, work and discussion between the different organisations has produced a measure which has found so much concord amongst your Lordships. I do not wish to detain your Lordships at this late hour, but one or two questions have been raised in the debate upon which I should like to comment. A number of the speeches made this afternoon, notably those of the noble Viscount, Lord Bledisloe, and the noble Lord, Lord Harlech—though in fact I think everyone touched upon this point—dealt with the question of numbers. With regard to the graduates who will be passing out from the various universities, I would like to stress again that the number which has been quoted is merely the minimum that we shall need. If we find—as noble Lords have said we shall—that the need is for greater numbers, there is nothing in the Bill to prevent us getting them. In fact, the Bill provides machinery to expand the number of universities and so increase the numbers of graduates.

I quite agree with noble Lords who have quoted figures regarding the losses due to disease. Lord Bledisloe, in particular, stressed this aspect, and mentioned a loss of £30,000,000 together with other estimated losses. It is, of course, difficult to get really accurate figures in this connection, but undoubtedly the numbers of animals lost are very high. It is one of the most important subjects that we have to tackle—the bringing about of a material reduction in these numbers—and in order to deal with that problem we must be able to take the most effective measures. One of the main points raised by the noble Earl, Lord De La Warr, and others—and may I say that I appreciated the remarks of the noble Lord, Lord Lucas of Chilworth, in this connection—related to the unqualified practitioner. It has been pointed out that the arrangements embodied in this Bill are the results of intensive negotiations which finally resulted in a compromise on admittedly a difficult subject. It is from that point of view that I would ask your Lordships to look at this matter and to give your approval to this scheme.

"A Key Word"

There has been some comment upon the title which is to be given to the men on the supplementary register, but I submit that it is extremely difficult to think of a good alternative to the one we have decided upon. Many people have considered this matter, and no one has succeeded in improving upon the phrase we have adopted. "Animal practitioner," I would suggest, is slightly ludicrous English. As the noble Viscount, Lord Bledisloe, pointed out, "veterinary" is a key word. If these unqualified men—some of whom have long experience and great knowledge—are to be brought under the discipline and control of the Council of the Royal College, I think it only fair to give them some title which will indicate what is actually their profession.

The question of the status of the universities is, of course, an extremely important one. We want to raise that and to consolidate it as much as possible. At the same time, I do not think that anyone can well lay down in a Bill either the procedure or the teaching of the universities; that is a thing which we must leave to the universities themselves. We must also leave it to negotiation and discussion between the Royal College of Veterinary Surgeons and the universities as to what is the best way of introducing the faculties and the manner in which the field stations are used in combination with the universities. I submit that these points are matters of detail better left to be agreed by negotiation between the interested parties than by indications in a Statute.

I think I have dealt with the main questions raised in the debate. The noble Earl, Lord De La Warr, asked me if there was any reliable estimate of the number of unqualified practitioners. As I told him, it is extremely difficult to get a reliable estimate but as the result of the latest information received, I think the figure is lower than that given by the Chancellor Committee. I would say that it is approximately more like 500 than 800. I do not, however, give that as a firm estimate; it is merely a matter of opinion. I will not keep your Lordships any longer. Other points which have been raised are, I think, points suitable to be dealt with in the Committee stage. May I say once again how much I appreciate the reception which your Lordships have accorded the Bill and the very constructive suggestions, and criticisms, which have been put forward. Again, I would express the hope that this much needed measure will have a speedy passage through your Lordships' House.

The Bill was read a second time and committed to a Committee of the Whole House.

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Questions

Fowl Pest (Fertiliser Meal)

Mr. Prescott asked the Minister of Agriculture whether he is aware that experiments have proved that fertilising meat and bone meal, imported as a land fertiliser, when fed to poultry causes fowl pest; and whether he will issue a warning to farmers and poultry keepers against this practice.

Mr. T. Williams: I have no knowledge of the experiments in question nor any evidence that feeding fertiliser meal has caused fowl pest. I agree, however, that fertiliser meal should not be fed to stock.

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Milk Testing

Mr. Sharp asked the Minister of Agriculture if he will give details of the proposed expansion of the National Milk Testing Service.

Mr. T. Williams: No expansion of the National Milk Testing

NOTES AND NEWS

Diary of Events

May 3rd.—Meeting of the Farmers' Club, at the Royal Empire Society, W.C.2. (Lord Teviot: "The Lucas Report"), 2.30 p.m.
May 4th.—Animal Management Examination commences at London.
May 4th.—R.C.V.S. Nominations to Council (last date).
May 6th.—Meeting of the West of Scotland Division, N.V.M.A., Clinical Club, at Glasgow Veterinary College, 7.30 p.m.
May 6th.—Annual Meeting of the Central Veterinary Society, Royal Veterinary College, N.W. 2 p.m.
May 10th.—Entries due for D.V.S. Examination.
May 10th.—First of the Animal Health Trust 1948 Fison Lectures, by Dr. L. Seekles, University of Utrecht, at Kingsway Hall, W.C.2, 2.30 p.m. (See Notice).
May 12th.—Second and third (concluding) A.T.H. 1948 Fison Lectures, by Dr. L. Seekles. (See Notice).
May 14th.—R.C.V.S. Voting Papers issued.
May 18th.—R.C.V.S. Pharmacology, etc., Examination (revised syllabus).
May 19th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m. (*Please note postponement from May 12th*)
May 25th.—R.C.V.S. Voting Papers to be returned.
May 27th.—Annual Meeting of the Society of Veterinary Practitioners, at the Holborn Restaurant, W.C.2, 2.30 p.m.
June 1st.—R.C.V.S. Annual General Meeting.
June 1st.—V.V.B.F. Annual General Meeting.
June 7th-8th.—R.C.V.S. D.V.S.M. Written Examination.
June 24th-25th.—R.C.V.S. Membership Written Examinations.

Sept. 8th to 15th (inclusive).—N.V.M.A. Congress at Southport.

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The Veterinary Surgeons Bill in the Lords

Profession's Opposition to "Veterinary Practitioner" Title for those on Supplementary Register

In our Parliamentary Columns this week we reproduce in full the *Hansard* report of the debate which took place in the House of Lords on April 20th when, on the motion of Lord Huntingdon, Joint Parliamentary Secretary, Ministry of Agriculture and Fisheries, the Veterinary Surgeons Bill, 1948, was read the second time and sent to Committee.

As our readers will be aware, the Bill is a Government "agreed" measure, but at the special and other meetings of Councils R.C.V.S. and N.V.M.A. held to consider its terms, it has been made clear that, as indeed was vigorously indicated by Earl De La Warr, the Government's announcement that the measure of agreement also reached with the veterinary profession embraces all major issues, requires qualification in one most important particular, namely, that the profession is very strongly of the opinion that the word "veterinary" must be reserved for exclusive application to its members.

Thus the intention announced in the Bill to confer the title "veterinary practitioner" upon unqualified persons accepted for inclusion in the proposed Supplementary Register, was the chief concern of Council, N.V.M.A. at its adjourned meeting held for continued discussion of the Bill, in London on Friday of last week.

In this connection, and after a full day's session devoted largely to consideration of this point, the following resolution was passed by the large representative assembly with but one dissentient who, however, was in favour of yet stronger measures:

> "That the Council of the National Veterinary Medical Association of Great Britain and Ireland deplores the application of the title 'Veterinary Practitioner' to unqualified persons as is proposed by the Veterinary Surgeons Bill, 1948, and agrees with the Royal College of Veterinary Surgeons that the use of the word 'Veterinary' in the title of the persons placed upon the Supplementary Register be opposed by all constitutional means."

A number of alternative titles to the term "Veterinary Practitoner" was proposed and in relation to this and any other matters arising out of the passage of the Bill through Parliament, power was given to the President and/or his nominee, to act, in conjunction with the President of the Royal College of Veterinary Surgeons.

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University of Bristol

School of Veterinary Science

Early in 1944 the Committee on Veterinary Education in Great Britain, of which Dr. T. Loveday was the Chairman, issued its second report and in this recommended that a School of Veterinary Science should be instituted at the University of Bristol to provide an annual output of 30 graduates. Bristol was regarded as specially suitable because of its proximity to the great grazing districts of the West and South-West.

The University had already indicated its willingness to undertake this task if such a recommendation were made. Steps were taken, in conjunction with the department of Crown Lands, to secure the estate of Langford in Somerset, some 14 miles from Bristol, for a future Field Station. The estate is small, about 80 acres in extent, but the scale and style of the farm buildings make it exceptionally well suited for this purpose.

Some delay has naturally occurred through the present difficulties in the way of new buildings, and because of the negotiations between the Ministry of Agriculture and Fisheries, the Royal College of Veterinary Surgeons, and the universities. But plans have been evolved by the departments of the University most closely concerned, and external advice has been taken. Within the last month the assent of the University Grants Committee to the project has been given. It is therefore now possible to fix October, 1949, as the date at which the first group of students will be admitted.

Staff will be appointed gradually, but certain key posts will be filled as soon as possible. In particular it is proposed to appoint one Veterinary Professor forthwith. In the period before he is required for teaching duties he will act as Adviser to the University for the development of the School and he will have facilities for setting up a research unit. The University will thus emphasise its intention of making the new School an institution for research as well as for the teaching of undergraduates.

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R.C.V.S. Council Election, 1948

Since our previous announcement a further nomination has been sent in from J. W. Emslie.

The list now stands as follows:—

Anderson, L. Guy—Aylesbury.
Bosworth, T. J.—Streatley.
Burrow, H.—Streatley.
Carmichael, James—Ongar.
Emslie, J. W.—Glasgow.
Hare, T.—London.
Mattinson, A. B.—Bamber Bridge.
Peele, J. D.—Durham.
Pugh, L. P.—Sevenoaks.
Townson, W. K.—Peterborough.
Tutt, J. F. D.—Winchester.

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Election Addresses of Candidates

Addresses of candidates for election to Council R.C.V.S. will in future, in accordance with the view of that body which is endorsed by the Editorial Committee, be published in the supple-

Service is proposed. A proposal has, however, been made by the Milk Marketing Board and the Central Milk Distributive Committee that the industry should assume responsibility for the laboratory testing of milk where this is not already the responsibility of licensing authorities under the Milk (Special Designation) Regulations. This proposal has been accepted in principle, and details of the new arrangements are now being worked out.

ment to *The Veterinary Record*. The latest date for the receipt of addresses in connection with this year's election is *Monday, May 3rd*; as in previous years, such addresses must be limited to 250 words.

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Animal Health Trust Fison Lectures

We would draw the attention of all those of our readers for whom attendance is possible, to the announcement in our Notices Columns of the 1948 series of Fison Lectures, to be delivered under the aegis of the Animal Health Trust, at the Kingsway Hall on May 10th and 12th, by the distinguished veterinary biochemist, Dr. L. Seekles, of the University of Utrecht. Dr. Seekles takes as his general theme certain important disorders of cattle and it is believed that these lectures will be helpful to veterinary practitioners and others. Admission is free, without ticket.

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PERSONAL

Marriage.—Potter—Hill.—On March 10th, 1948, at St. Gabriel's Church, Sunderland, Robert Potter, M.R.C.V.S., of Orchard House, St. John's, Bexhill, to Joy, only daughter of Mr. and Mrs. W. B. A. Hill, of Sunderland.

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CHILDREN'S HOLIDAY EXCHANGES (FRANCE)

Monsieur P. E. Godechaux, Editor, *L'Action Vétérinaire*, 98, Avenue de Suffren, Paris XVe, whom we have been glad to assist in arranging for the exchange of correspondence between the children of French and British veterinarians, writes to say that this is, at the moment, specially concerned with mutual holiday visitation. He would be glad to hear direct from English families who would be interested in arranging such alternate visits in respect of the following French children: a boy of 12 and one of 17; a girl of 12 and one of 18.

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SIR JOHN BOYD ORR'S SUCCESSOR

Mr. Norris E. Dodd, United States Under-Secretary of Agriculture, has been appointed Director-General of the Food and Agricultural Organisation in succession to Sir John Boyd Orr. Mr. Dodd's appointment, recommended by the general committee, was confirmed unanimously by the Council. Sir John has been Director-General since the organisation was instituted in October, 1945.

Mr. Dodd, who is 69, is (says the *Farmer and Stock-Breeder*) a practical scientific farmer who has played a big part behind the scenes in developing U.S. agricultural policy and in increasing production and reforming marketing methods. He has specialised in raising wheat and Hereford cattle.

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R.C.V.S. Central Library for Animal Diseases

Accessions for Quarter Ending March, 1948

Books (Presented by J. F. D. Tutt, Esq., F.R.C.V.S.):

Notes of Lectures delivered by Sir John M'Fadyean at the Post-graduate course in Veterinary Pathology and Bacteriology, held at the Royal Veterinary College, October and November, 1910. Taken by E. G. Haskell (Typescript).

Lectures on Pathology and Bacteriology delivered by Sir John M'Fadyean, B.Sc., M.R.C.V.S., at the Royal Veterinary College, London. Session 1912-13. Part 2 Bacteriology, taken down by Mr. J. F. D. Tutt (Typescript).

Stroud, R.: Stroud's Digest on the diseases of birds. Minneapolis, 1943.

Manuscripts:

Bacteriology—Notes of Lectures delivered by Sir John M'Fadyean, taken by A. Spicer, Esq., F.R.C.V.S. Presented by Mr. Spicer.

Fleming, G. Report of Westley Richards Method of Shoeing Horses, 1873. Presented by Mr. T. H. Billington.

Reports 15, *Calendars and Yearbooks* 1, *Pamphlets and Reprints* 60, *Journals* 9.

Purchases:

Besterman, T. *comp.*: British sources of information. London, 1948.

Bourdelle, E., *and others*: Technique de dissection des animaux domestiques. Paris, 1947.

Curasson, G.: Le chameau et ses maladies. Paris, 1947.

Dorland, W. A. N.: American illustrated medical dictionary 21st ed. Phil., 1947.

Francis, J.: Bovine tuberculosis. London, 1947.

Gunther, F. A.: New manual of homoeopathic veterinary medicine. London, 1847.

Hammond, J., *ed.*: The artificial insemination of cattle. Cambridge, 1947.

Hoeden, J. van der: Die Zoonosen. Leiden, 1946.

I.A.B. Joint Publications No. 10: The use and misuse of shrubs and trees as fodder. Aberystwyth, 1946.

I.A.B. Joint Publications No. 11: Some British books on Agriculture, forestry and related sciences, 1939-45. Aberystwyth, 1946.

International Veterinary Congress, Thirteenth. Zurich-Interlaken, 1938. Report, 2 vols.

Leach, W. J.: Functional anatomy of the mammal. N.Y. and London, 1947.

Miller, W. C.: Report on animal health and husbandry in the Gold Coast. London, 1947.

National Cattle Breeders Association: British Pedigree Cattle. London, 1947.

Royal Society of Medicine *and* Scientific Film Association *comps.*: Catalogue of Medical Films. London, 1948.

Shorter Oxford English Dictionary, 2 vols. Oxford, 1947.

Topley, W. W. C., & Wilson, G. S.: Principles of Bacteriology and immunity, 3rd ed., 2 vols. London, 1946.

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PATENT MEDICINES: CODE OF STANDARDS FOR ADVERTISING

Another, and probably the most salutary, step in the difficult process of attempting to regulate advertisements of proprietary preparations, is the recent issue of a British code of standards to be observed in advertising medicines and treatments. The code has been drafted for the guidance of advertisers, manufacturers, and distributors of proprietary medicines, advertising agents, publishers, and suppliers of various advertising media, with the approval and support of the main bodies representing the Press, the advertising agents, and the proprietary manufacturers.

The code lays emphasis on "the harm to the individual that may result from exaggerated, misleading, or unwarranted claims," and on the need for "the adoption of a very high standard and the inclusion of considerable detail" in a code designed for guidance in this form of advertising. Newspapers are urged not to accept advertisements of any product or treatment from any advertiser or advertising agent who disregards the code in other forms of advertising or publicity.

The code has three sections, comprising general recommendations, restrictions imposed by statute, and the diseases, illnesses, or condition for which medicines, treatments, or products may not be advertised. They are prefaced by a statement that the code does not apply to an advertisement published by a Government Ministry or Department or a local authority, or to an advertisement designed to be read only by registered medical and dental practitioners, pharmacists, and nurses.

Advertisements, it is recommended, should not contain a claim to cure any ailment or symptoms of ill-health. They should not contain any offer or advice relating to treatment or relief of serious diseases, complaints, or conditions that should rightly receive medical attention, or make misleading or exaggerated claims, appeals to fears, or offer to diagnose or treat disease by correspondence. No prize competition or similar scheme, nor any offer to refund money paid, should appear in any advertisement, nor should there be directly or by implication disparagement of the products, medicines, or treatments of another advertiser or manufacturer, or registered medical practitioner or the medical profession. Terms such as college, clinic, institute, or laboratory should not be used "unless an establishment corresponding with the description used does in fact exist." References to doctors or hospitals, whether British or foreign, are not permissible, unless they can be substantiated by independent evidence and can be properly used.

Illustrations in advertisements should be in good taste, and should not distort or exaggerate to convey false impressions, and no use may be made of words like magic, magical, miracle, or miraculous. Special claims calculated to lead the public to assume that certain drugs and chemicals have special properties or qualities that are unknown are prohibited.

Section III of the code provides that no advertisement should contain any matter which can be regarded as an offer of a medicine, treatment, or product in relation to a large number of specified maladies.

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Weekly Wisdom

The prevalent sin of the modern world is to pursue knowledge as an end rather than as a means to fuller and truer life.—H. l'Anson Faussett.

SODIUM FLUORIDE IN ROUND-WORM INFESTATION OF PIGS

In view of the increased interest being taken by small pig-keepers in round-worm infestation, it is probable that members will be receiving requests for an anthelmintic, other than santonin or oil of chenopodium, which can be given mixed in the food. Sodium fluoride, mentioned on page 63 of the N.V.M.A. Handbook on Diseases of the Pig, may be regarded by practitioners as a useful preparation in this respect.

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In view of unforeseen difficulties, the Executive Committee of the Provisional Committee has decided not to proceed with the proposed paper on "Canine Leptospirosis" at the present juncture. The Committee has expressed appreciation to those concerned for their ready co-operation in this matter.

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Scheme for the Control of Diseases of Dairy Cattle

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE QUARTER ENDED MARCH 31ST, 1948

ENGLAND	Undertakings Notified			Number of Cattle	
	During Quarter	Previously	Total Undertakings	Cows	Heifers
Bedford	—	6	6	95	39
Berks	—	46	46	1,418	988
Bucks	1	9	10	296	304
Cambridge	—	—	—	—	—
Cheshire	4	120	124	4,210	1,897
Cornwall	—	—	—	—	—
Cumberland	1	9	10	409	304
Derby	6	190	196	5,702	3,161
Devon	5	97	102	1,463	1,071
Dorset	—	4	4	92	52
Durham	1	152	153	3,272	1,330
Essex	6	94	100	3,431	2,589
Gloucester	1	31	32	1,062	936
Hampshire	6	108	114	3,917	2,575
Hereford	2	3	5	183	126
Hertford	3	19	22	747	535
Hunts	—	—	—	—	—
Isle of Ely	—	—	—	—	—
Isle of Wight	—	—	—	—	—
Kent	3	53	56	1,244	905
Lancs	—	71	71	2,174	942
Leics	2	58	60	1,457	1,260
Lincs (Holland)	—	—	—	—	—
Lincs (Kesteven)	1	8	9	98	84
Lincs (Lindsey)	—	10	10	301	266
Middlesex	—	1	1	9	13
Norfolk	—	49	49	1,645	1,196
Northants	1	21	22	458	569
Northumberland	—	28	28	836	581
Notts	5	99	104	2,500	1,374
Oxford	1	7	8	229	243
Rutland	—	—	—	—	—
Salop	15	49	64	7,043	1,223
Soke of Peterborough	—	—	—	—	—
Somerset	4	90	94	2,120	1,199
Staffs	9	84	93	2,700	1,890
Suffolk (East)	1	17	18	380	290
Suffolk (West)	1	15	16	367	322
Surrey	2	37	39	1,039	643
Sussex (East)	2	52	54	1,584	1,058
Sussex (West)	2	33	35	941	718
Warwick	3	57	60	1,727	931
Westmorland	—	2	2	27	21
Wilts	—	33	33	1,257	839
Worcester	4	74	78	1,524	908
Yorks (E.R.)	—	38	38	656	545
Yorks (N.R.)	5	53	58	2,598	1,280
Yorks (W.R.)	3	95	98	2,355	1,096
TOTAL, ENGLAND	100	2,022	2,122	64,545	36,403
WALES					
Anglesey	1	9	10	151	107
Brecon	—	5	5	99	68
Caernarvon	3	22	25	488	202
Cardigan	3	21	24	510	309
Carmarthen	5	128	133	2,563	1,408
Denbigh	—	11	11	213	117
Flint	—	22	22	565	236
Glamorgan	1	28	29	441	232
Merioneth	—	—	—	—	—
Monmouth	2	6	8	183	134
Montgomery	1	—	1	12	11
Pembroke	—	8	8	218	235
Radnor	—	1	1	5	1
TOTAL, WALES	16	261	277	5,448	3,060
TOTAL, ENGLAND AND WALES	116	2,283	2,399	69,993	39,463

Notes.—Operative periods of undertakings: 1 year, 573; 2 years, 140; 3 years, 1,686. Undertakings renewed for further periods: 1 year, 58; 2 years, 3; 3 years, 8. Undertakings not renewed at end of operative periods: 194. The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings and do not include undertakings renewed for further periods. Undertakings which have been cancelled or not renewed are not included in the figures for previous notifications.

SCOTLAND	Undertakings Notified			Number of Cattle	
	During Quarter	Previously	Total Undertakings	Cows	Heifers
Aberdeen	—	15	15	825	368
Angus	—	12	12	520	331
Argyll	—	—	—	—	—
Ayr	—	10	10	351	214
Banff	—	1	1	120	20
Berwick	—	1	1	22	7
Bute	—	—	—	—	—
Caithness	—	—	—	—	—
Clackmannan	—	1	1	29	15
Dumfries	—	12	12	617	562
Dunbarton	1	—	1	12	10
East Lothian	—	1	1	20	8
Fife	—	18	18	637	452
Inverness	—	1	1	52	35
Kincardine	—	2	2	60	68
Kinross	—	3	3	59	41
Kirkcudbright	—	6	6	741	712
Lanark	1	3	4	186	114
Midlothian	—	—	—	—	—
Moray	—	—	—	—	—
Nairn	—	—	—	—	—
Orkney	—	—	—	—	—
Peebles	—	—	—	—	—
Perth	—	11	11	304	219
Renfrew	—	3	3	139	98
Ross-shire	—	2	2	87	62
Roxburgh	—	—	—	—	—
Selkirk	—	—	—	—	—
Stirling	—	6	6	182	181
Sutherland	—	2	2	35	32
West Lothian	—	2	2	53	50
Wigtown	—	11	11	848	457
Zetland	—	—	—	—	—
TOTAL	2	123	125	5,899	4,056

Notes.—(a) Duration of undertakings: 1 year, 34; 2 years, 3; 3 years, 88. (b) Undertakings renewed for a further period (included in column 2 of statement): 1 year, 143; 2 years, 9; 3 years, 79. (c) Undertakings expired and not renewed (not included in the second column of the statement): 280. (d) The figures in the first column of the statement relate to entirely fresh undertakings.

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CATALOGUE OF MEDICAL FILMS

"The Catalogue of Medical Films compiled by the Royal Society of Medicine and the Scientific Film Association, which are referred to in the catalogue as RSM and SFA respectively (ASLIB, 52, Bloomsbury Street, W.C.1, 1948. 7s. 6d. and 6s. to members of ASLIB and SFA), is a very useful small volume," observes *Nature* in a recent issue, and continues: "It is the outcome of collaboration, suggested by the Royal Society of Medicine when it was considering the formation of a library of medical films. By March, 1946, more than 1,200 titles of films had been collected from lists held by commercial firms, medical schools and societies, university departments and private individuals. All the material thus collected has been entrusted to the care of the Scientific Film Association, to which all enquiries about it should be addressed (34, Soho Square, London, W.1). Eight hundred of the films have been viewed, and Part 1 of the catalogue groups them by subjects and catalogue numbers. Part 2 gives details of the availability of 200 of the films. It shows that they come from various sources in Britain, Europe and the United States, and range from elementary instructional films suitable for health education of the lay public to films of difficult surgical operations and similar subjects suitable only for medical and scientific audiences. All the films listed in Part 2 are available, and more than one copy of each exists. Many other films not listed in Part 1 are also now available, and details of these can be obtained from the medical cataloguer of the Scientific Film Association."

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents are requested to write as briefly as possible.

BOVINE MASTITIS ASSOCIATED WITH GROUP C HAEMOLYTIC STREPTOCOCCI (ANIMAL PYOGENES)

Sir,—The occurrence of bovine mastitis associated with group C streptococci (animal pyogenes) would seem to be rare, and the literature provides few records of its appearance. Workers in America, with one notable exception, have reported mainly isolated cases of such mastitis and, in Britain, Stableforth (1939) encountered four cases in one herd.

Recently there has arisen the opportunity to study two outbreaks of mastitis in widely separated herds in which group C haemolytic streptococci were the only organisms to be recovered

from the udders of 14 cows showing clinical evidence of mastitis. Milk samples from the remainder of the infected cows in both herds yielded for the most part only *Streptococcus agalactiae*.

Whilst it is appreciated that this is not the first occasion on which group C (animal pyogenes) streptococci have been found associated with clinical mastitis of several cows in the same herd in this country, since an outbreak of a similar nature was studied a few years ago (unpublished data), it is believed to be the first case of its kind to be reported.

The importance to be attached to such outbreaks of mastitis would seem to lie in the comparative resistance of the organisms to intramammary infusions with penicillin of the strength and frequency commonly used in the field and which, in the great majority of cases, are sufficient to relieve infections with *Streptococcus agalactiae*. In this laboratory it was found that, whereas by the use of three daily infusions of 50,000 units of penicillin in 50 c.c. of water 70 per cent. of heavily infected quarters were freed of *Streptococcus agalactiae*, this treatment was insufficient even to reduce infections caused by group C streptococci.

It is hoped that it will be possible to publish a fuller report of this work at a later date.

Yours faithfully,

J. C. Buxton, M.R.C.V.S.
Veterinary Investigation Officer.

Veterinary Investigation Department,
University College of Nottingham,
School of Agriculture,
Sutton Bonington,
Loughborough.

April 26th, 1948.

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A CONDITION FOR DIAGNOSIS

Sir,—This case is described in the hope that someone may be able to make some suggestion as to aetiology or any further procedure to help in diagnosis.

The herd is a recently established attested Ayrshire herd but has had four consecutive tests without any reactors being disclosed.

Three similar cases have occurred so far and it is possible that two further cases may just be commencing.

The general outline of the cases is as follows:—

The first thing noticed is a capricious appetite in a previously perfectly healthy cow. This progresses until little food of any sort is taken and a variable diarrhoea commences. Loss of flesh continues until emaciation is extreme. There are few other clinical symptoms to be noted. Faecal examination fails to reveal helminth eggs or acid-fast bacilli. Rothera's tests on milk samples have given a faint positive on one occasion only. A blood examination on two cases showed the copper level to be normal.

The first case commenced in June, 1947, in a cow in full milk. She became extremely emaciated and actually was expected to die, but after about three months gradually commenced to improve and is now in good condition and milking well again, having carried her calf and calved normally. She has apparently suffered no permanent ill effects. General symptomatic and tonic treatment did not appear to influence the course of the disease.

The second case commenced in December, 1947, in a newly calved cow. She became very emaciated and went right down in her milk. She has just commenced to improve in appetite and milk yield and the faeces are more normal but she is not yet putting on any flesh. A Rothera's test on milk once gave a faint positive reaction; this disappeared, however, after intravenous glucose but without any improvement in condition. A mineral mixture containing trace elements was commenced early in the disease but was not followed by any obvious improvement until very recently. A massive dose of vitamin A intramuscularly has not appeared to hasten improvement.

The third case commenced in January, 1948, in a dry cow due to calve in early March. She became extremely emaciated but calved normally, at full time, a small but lively calf and cleansed normally. She came to no milk, continued to depreciate, and was eventually found down and comatose and was destroyed. On *post-mortem* examination the only macroscopic abnormality was oedema of the intestinal mucosa from abomasum to rectum with patches of inflammation. A complete mineral mixture was commenced early in the disease and a massive dose of vitamin A was given.

Two further newly calved cows have recently begun to refuse food. One of them shows a slight Rothera's reaction in milk. Both have had mineral mixture for some months and one has had vitamin A. It is not yet certain whether these will turn out to be similar to the previous cases under consideration.

Yours faithfully,

Leighton House, Uttoxeter. John A. Lee.
March 26th, 1948.

THE VETERINARY SURGEONS BILL

Sir,—We wish to express our assent to all that Esmond Brown has written in *The Veterinary Record* of April 24th, regarding the Veterinary Surgeons Bill. It is little wonder that Earl De La Warr expressed surprise that the term "Veterinary Practitioner" be used for those unqualified persons to be registered in the Supplementary Register.

The Bill, amongst other things, proclaims its intention "to restrict the practice of Veterinary Surgery by unqualified persons," and yet, contrary to what one expects, gives greater facilities to quacks. They will be colloquially termed "Vets." by the laity, who will find as much difficulty in distinguishing those who have not taken the diploma from those who have, as in the case of the dental profession. Why should our profession slavishly follow in the footsteps of the dental profession in calling these unqualified persons "veterinary practitioners," when the Chancellor Committee recommended the name "animal practitioners"?

They are to be allowed all the privileges of the veterinary surgeon regarding purchase of drugs and poisons, recovery of fees, and exemption from jury service—and all these at a fee of one guinea when qualified members must pay five guineas. There seems no justification for such a differentiation if they are to be called *veterinary practitioners*.

The rights extended to those not entered on any register are amazingly vague. In sect. 5 sub-sect. 2 the phrase "any minor treatment, test or minor operation" appears, and later in the first schedule the words "castration and caponising" are used. What exactly does "minor" entail? Does it include poultry testing? And, if so, could it therefore not be extended to tuberculin testing and artificial insemination? Where are we to draw the line, when ministers are so adamant?

Regarding castration, it seems very inadvisable that this operation should be performed by unregistered people on adult horses and cattle. We therefore suggest that it be limited to animals under a certain fixed age.

With reference to provisions as to training, whilst we agree that holders of University degrees in Veterinary Surgery should be eligible for registration in the register of Veterinary Surgeons, we see no reason why university graduates should on obtaining their qualifying degree automatically become members of the Royal College and consider that membership of R.C.V.S. should be reserved for those students who take the diploma course and not the degree course.

To conclude, we are of the opinion that this Bill needs careful consideration by *all* members of the profession before it becomes law.

Yours faithfully,

The University of Liverpool, J. R. Holmes.
School of Veterinary Science, W. J. Jordan.
Field Station,
"Leahurst,"
Neston, Wirral.

April 24th, 1948.

Advertiser's Announcement

4:4'-Diaminodiphenyl Sulphone in the Treatment of Bovine Mastitis

Although the activity of 4:4'-diaminodiphenyl sulphone against streptococcal infections in mice has been recognised for some years, limited trials indicated that the drug was too toxic for use in man, and its value in veterinary medicine was not fully investigated until 1945. Work was then begun in the Biological Laboratories of Imperial Chemical (Pharmaceuticals) Limited, and the potency of this agent against *Str. agalactiae* infection and its persistence in the bovine udder were found to be outstanding. These two properties made it evident that the value of the drug in the treatment of bovine mastitis should be assessed and field trials were initiated.

In these trials quarters were injected with 10 grammes of the drug, and 50 of 63 (79·4 per cent.) dry quarters, and 20 of 33 (61 per cent.) lactating quarters recovered bacteriologically. Both of these figures are better than those obtained with a single dose of penicillin, and the average recovery rate in lactating and dry cows (73 per cent.) is very similar to that obtained with two doses of 20 to 50,000 units of penicillin or with four injections of sulphanilamide in oil. Similar results have been obtained with this treatment by a large number of practitioners.

The injection of 50,000 units of penicillin combined with the single dose of sulphone produced a recovery rate of 95 per cent. in 62 dry quarters and 85 per cent. in 103 lactating quarters, with a combined average for dry and lactating quarters of 88·5 per cent.

If the results obtained with this combined treatment are compared with those in the literature obtained with penicillin, it will be seen that the single injection of sulphone plus penicillin has given better results than two injections of 20 to 50,000 units of penicillin, and although the results require wider confirmation they appear to be as good as those obtained with multiple injections of penicillin. It is clear that with sulphone alone or sulphone plus penicillin the outstandingly good results are obtained in the dry cow.

Elsewhere in this issue is announced the availability of 4:4'-diaminodiphenyl sulphone under the name of "Udolac" brand of Diphenasone Udder Paste. For the convenience of the practitioner it is made up in a sufficient quantity of an inert oily base for ease of handling and packed in tubes with sterile cannulae for direct injection into the udder.